



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D407-558-045
Job Sheet 172989



Part No: D407-558-045

Job Qty: 1 ea

Part Name: Single Mirror Installation



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 2/23/18

Job Tracking No: reference SO 3442

Due Date: 3/6/18

Created By: Michelle Gagnon-Donovan

Type: SO

Description:

Note: DWG REV D IPP Rev:A 09-01-15 new issue DD verified by:ec IPP Rev:B 10.06.17 added grommet DD
verf:EC IPP REV:C 11.01.19 AS PER chg002 DD VERF:EC IPP REV:D 12.04.04 AS PER chg003 DD
VERF:EC

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	Sign-off
90	Start up Operation	1 Ea	3/5/18	3/5/18	0.00	0.00	Start Up Small Fab-4		
110	Small Fab	1 pcs	3/6/18	3/6/18	0.00	1.01	Small Fab-5		
120	QC	1 pcs	3/6/18	3/6/18	0.00	0.00	QC5		
125	Packaging	1 pcs	3/6/18	3/6/18	0.00	0.00	Packaging1-4		
130	QC	1 pcs	3/6/18	3/6/18	0.00	0.00	QC4		
135	DC	1 pcs	3/6/18	3/6/18	0.00	0.00	DC		
140	Packaging	1 pcs	3/6/18	3/6/18	0.00	0.00	Packaging3-2		
150	QC21-FG	1 Ea	3/6/18	3/6/18	0.00	0.00	QC21		

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Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D2011-101	Mirror 6"	1 Ea (1 ea)	90-Start up Operation	5015268 SJ
D2052	Bracket	2 Ea (2 ea)	90-Start up Operation	5027179
D2054	Bushing - Delrin	2 Ea (2 ea)	90-Start up Operation	5031100
D2055	Clamp	1 Ea (1 ea)	90-Start up Operation	5018488
D2056	Bell Crank Assembly	1 Ea (1 ea)	90-Start up Operation	5020962
D2057	Plug	1 Ea (1 ea)	90-Start up Operation	P152226
D2065	Mirror Arm	1 Ea (1 ea)	90-Start up Operation	P161746 SJ
MS21042L3	Nut	2 Ea (2 ea)	90-Start up Operation	5038764 SJ
MS27039-1-18	Screw	2 Ea (2 ea)	90-Start up Operation	F134326 SJ
MS35489-67	Grommet	1 Ea (1 ea)	90-Start up Operation	5015269 SJ
MS35489-9	Grommet	1 Ea (1 ea)	90-Start up Operation	
NAS1149D0363J	Washer	4 Ea (4 ea)	90-Start up Operation	
AN3-4A	Bolt	4 Ea (4 ea)	125-Packaging	
AN526-1032R9	Screw	4 Ea (4 ea)	125-Packaging	
D2053	Bracket	1 Ea (1 ea)	125-Packaging	
D2067	Connector	1 Ea (1 ea)	125-Packaging	
D2071-5	Cable	1 Ea (1 ea)	125-Packaging	
D3778-3	Bracket	1 Ea (1 ea)	125-Packaging	
MS21042L3	Nut	1 Ea (1 ea)	125-Packaging	
MS21919-DG5	Clamp	2 Ea (2 ea)	125-Packaging	
NAS1149D0332J	Washer	6 Ea (6 ea)	125-Packaging	FM13734.0

001355

001545

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Job Allocations				
Operation	Component Part	Required	Inventory	Allocated
90-Start up Operation	D2011-101	1	53	0
	D2052	2	25	0
	D2054	2	41	0
	D2055	1	15	0
	D2056	1	11	0
	D2057	1	22	0
	D2065	1	6	0
	MS21042L3	2	3,421	0
	MS27039-1-18	2	1,388	0
	MS35489-67	1	33	0
	MS35489-9	1	42	0
	NAS1149D0363J	4	3,429	0
	A 1 1A	4	310	0
	MS27039-1-18	4	100	0
	D2052	1	14	0
125-Packaging	D2057	1	7	0
	D2074-6	1	7	0
	D2075-2	1	5	0
	MS21042L3	1	3,421	0
	MS27039-1-18	2	41	0
	NAS1149D0332J	6	3,722	0
Part Specifications				
Specifications could not be found.				

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Container No: S048312



Part: D407 - 558 - 045

Job No: 172989

Serial No/Batch: S048312

Revision:

Inspector:

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Date: 03/06/18

DQA:

Date:

QA Closed: **DAS** **53** **DEC 14 2018**

WORK ORDER NON-CONFORMANCE / UPDATE

Work Order update only



Work Order: 9-892989 D407-SSB-045		Part No. D407-SSB-045		NCR No. 18-7043		Date: 18-3-6		Step #: 110		QTY Effective: 0		MRB (QS1042) Approval PD 18-3-6	
DISPOSITION				AGAINST DEPARTMENT/PROCESS				Cross tube		Water Jet		Engineering	
Rework				Skid-tube				Small Fab		Prod. Eng. Coord.		Quality	
Scrap				Machining				Finishing		Rec/Store/Packaging		Other	
Use-as-is				Thermoforming				Composite		Supplier			
Suspected Unapproved				Large Fab									
Description Work Order Deviation						Disposition							
Stud striped into ball mount						Scrap destroy and replace D2011-101							
Completed By						Lead hand / Supervisor Approval Verification 							
QC / QA Coordinator Approval PD 18-3-6													

Root Cause				FAULT CATEGORY																										
Environment	No Re-verification	Pressure/Forced	Temperature/Cure	Power Loss/Surge	Positioned Wrong	Design	Bending	Set-up	Folio/Program	Outside Dimensions	Doc/Data	Centre Not Concentric	BOM/Route	Grain	Over/Under tolerance	Equip/Tooling	Cracks	Broken/Damage/Defect	Weld	Part Incorrect	Part Lost/Missing	Handling/Pre	Crimp/Kink/Ripple/Wave	Inspection Incomplete/Unqualified	Wrong Stock Pulled	Part Moved	Drawing	Finish	Misread	Turning Sequence
Operator	☒	Crushing	Contamination	Power Loss/Surge		Material	Cracks	Broken/Damage/Defect	Power Loss/Surge		Internal Transport	Cracks	Broken/Damage/Defect	Grain		Material	Crushing	Broken/Damage/Defect	Weld			Internal Transport	Cracks	Wrong Stock Pulled	Part Moved	Drawing	Finish	Misread	Turning Sequence	
Use for Testing		Heat Treat	Countersink	Power Loss/Surge		Tribal Knowledge	Heat Treat	Countersink	Power Loss/Surge		Substation	Wave/Twist in Tube	Countersink	Off-set		LOA	Wave/Twist in Tube	Off-set	Wrong Stock Pulled	Part Lost/Missing		Substation	Wave/Twist in Tube	Off-set	Wrong Stock Pulled	Part Lost/Missing	Drawing	Finish	Misread	Turning Sequence
Poor Information		Wave/Twist in Tube	Instructions Incomplete/Unclear	Power Loss/Surge		Past Expiry Date	Wave/Twist in Tube	Instructions Incomplete/Unclear	Power Loss/Surge		Misidentified	Drill Holes	Instructions Incomplete/Unclear	Misaligned/off center																
Rushing		Marks/Chatter	OTHER :	Power Loss/Surge					Power Loss/Surge																					
Product Improvement				Power Loss/Surge					Power Loss/Surge																					
Process Improvement				Power Loss/Surge					Power Loss/Surge																					
Manufacturing Process				Power Loss/Surge					Power Loss/Surge																					
Past Due				Power Loss/Surge					Power Loss/Surge																					



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Container View (Active) - Master Unit Containers

Master Unit No	Container No	Part No	Part Name	From Container	Current Location	Quantity
001545	S049528	AN3-4A	Bolt	S010388	ST350	4
001545	S049526	AN525-106273	Screw	FM137735-4	ST327	4
001545	S049525	D2053	Bracket	F108242	ST001	1
001545	S049524	D2007	Connector	F105444	ST001	1
001545	S049523	D2071-5	Cable	F154882	ST216	1
001545	S049522	D3770-2	Bracket	F145811	ST051	1
001545	S049521	MS210421-3	Nut	S028734	ST303	1
001545	FM137735-4	MS21915 DCL	Clamp		ST294	2
001545	S049520	MS35488-27	Grommet	F121599	ST269	1
001545	S049519	MS35489-2	Grommet	FM135044	ST270	1
001545	S049518	NAS1148D03321	Washer	S020045	ST264	6

Note: Ad hoc query view of Part.dbo.Container where Container.Active = 1.

Plex 3/9/18 8:36 AM dart.quirion.sonia

REFERENCE ONLY

4.0 WEIGHT AND BALANCE

Installation	Weight	LATERAL		LONGITUDINAL	
		Arm	Moment	Arm	Moment
D206-558-041	2.4 lb	+5.0 in	+12.0 in-lb	+14.8 in	+35.5 in-lb
Bell 206A/B/L/L1/L3/L4	1.09 Kg	+0.13 m	+0.14 m-Kg	+0.38 m	+0.41 m-Kg
D206-558-043	3.0 lb	0.0 in	0.0 in-lb	+14.8 in	+44.4 in-lb
Bell 206A/B/L/L1/L3/L4	1.36 Kg	0.0 m	0.0 m-Kg	+0.38 m	+0.52 m-Kg
D407-558-045	2.4 lb	+5.0 in	+12.0 in-lb	+14.8 in	+35.5 in-lb
Bell 407	1.09 Kg	+0.13 m	+0.14 m-Kg	+0.38 m	+0.41 m-Kg
D407-558-047	3.0 lb	0.0 in	0.0 in-lb	+14.8 in	+44.4 in-lb
Bell 407	1.36 Kg	0.0 m	0.0 m-Kg	+0.38 m	+0.52 m-Kg

5.0 PARTS LIST

Qty -041	Qty -043	Qty -045	Qty -047	Part Number	Description
X				D206-558-041	SINGLE CARGO MIRROR ASSEMBLY
	X			D206-558-043	DUAL CARGO MIRROR ASSEMBLY
				D407-558-045	SINGLE CARGO MIRROR ASSEMBLY
			X	D407-558-047	DUAL CARGO MIRROR ASSEMBLY
1	2	1	2	D2011-101	MIRROR ASSEMBLY
2	2	2	2	D2052**	BRACKET
1	1	1	1	D2053	BRACKET
2	2	2	2	D2054**	BUSHING
1	1	1	1	D2055**	CLAMP
1	1	1	1	D2056**	BELLCRANK ASSEMBLY
1		1		D2057	PLUG
1		1		D2065	ARM
	1		1	D2066	ARM
1	1	1	1	D2067	CONNECTOR
1	1			D2071	CABLE ASSEMBLY
		1	1	D2071-5	CABLE ASSEMBLY
1	2	1	2	D3014-1*	LOCKNUT
1	1			D3778-1	BRACKET
		1	1	D3778-2	BRACKET
4	4	4	4	AN5-16	BOLT
4	4	4	4	AN525-1032P6	SCREW
1	2	1	2	NAS1149D0416P*	WASHER (AN960JD416L)
4	4	4	4	NAS1149D0363P**	WASHER (AN960JD10)
6	6	6	6	NAS1149D0332P	WASHER (AN960JD10L)
3	1	3	1	MS21042-3	NUT (or MS21042L3)
	2		2	MS21042-3**	NUT (or MS21042L3)
2	2	2	2	MS21042-5	CLAMP
2	2	2	2	MS27039-1-18**	SCREW
1	1	1	1	MS25480-0	GROMMET
1	1	1	1	MS25480-1	GROMMET

* INCLUDED AS PART OF D2011-101 MIRROR ASSEMBLY

** INCLUDED AS PART OF D2066 ARM (REF. -043/-047 ONLY)